

Response to EPA Comments on the Pulliam Mercury PMP

Comment: Will Pulliam quantify the concentration of mercury in City of Green Bay water as part of the PMP?

- A. Yes as identified in the table the City of Green Bay water is one of the PMP sources that will be tested.

Comment: As stated above, since Pulliam has a variance from WQS, EPA's expectation is that during the course of the variance, Pulliam will take all feasible steps to reduce the concentration of mercury in its effluent that is attributable to actions by the facility, unless implementing a particular control is expected to itself be unattainable for one of the reasons in 131.10(g). Alternatively, it may be that control measures at certain points in the process have no discernible impact on either concentration or load due to treatment steps taken downstream. Please revise the following portion of the PMP to reflect this:

“If a plant process is identified to be adding mercury to the facility’s wastewater treatment system at levels above the background levels of the original source water supply, then the facility will evaluate the impact of possible actions based on expected water quality improvements at Outfall 101. Additional considerations will include the likelihood of achieving expected results, ease of implementation and whether the source of the mercury is from the power plant or from the water supply.”

- A. The PMP outline has been modified to reflect the EPAs comments to include a reference to 40CFR 131.10(g) and to include in the evaluation whether the control measures have a discernible impact on either concentration or load at Outfall 101.

Comment: The number of samples needed should be based on the data necessary to support the PMP work and may depend upon the variability of the mercury Hg concentration in sampled water (boilers, coal handling, demineralizer, Fox River); the greater the variability, the more samples may be necessary to support any conclusions about a particular waste stream.

- A. WPSC agrees with this comment and in response has committed to performing at least two years of quarterly sampling after the PMP Plan receives WDNR approval. Quarterly sampling will continue unless or until it meets one of the identified criteria that would justify reducing the sampling frequency. In the case of variability, should there be a large variability of the mercury concentration in the sampled water (i.e. a non consistent concentration) and the concentration is greater than 1.3 ng/l, then the sampling will continue during the next five years or until the permit is renewed.

Comment: On page 2 of the proposed PMP, Pulliam states: “If a wastewater stream is determined to be contributing mercury to the wastewater treatment facility above the background levels of the service water supply (Fox River), quarterly sampling will continue during the permit term....” Rather than compare each waste stream to the Fox River background Hg levels, the concentration of Hg in each waste stream should be compared to that in the source water for that process (e.g., demineralizer water Hg content should be compared to City of Green Bay water Hg content).

- A. Specifically for the demineralizer water supply that comes from the City of Green Bay, WPSC will be evaluating the mercury concentration of the pre-demineralizer rinse water against the post-demineralizer rinse water. This methodology will determine if there is any mercury being added by this plant process. The table has been modified to reflect this commitment.

Comment: When comparing pre-treatment wastewater to post-treatment wastewater, a larger number of samples would enable the facility to make stronger conclusions as to the effectiveness of its treatment system. Our point is that adhering to a pre-selected number of samples may save resources in the short term, but ultimately undercut Pulliam’s ability to document the results of its PMP efforts and make the PMP report less useful to Pulliam, WDNR, EPA and the public and contribute to controversy and delay in any subsequent actions concerning mercury in Pulliam’s effluent.

- A. As stated in the draft PMP action plan, WPSC will be collecting influent mercury samples to the wastewater treatment facility (prior to the Lamella clarifiers) on a quarterly basis in conjunction with quarterly mercury samples from Outfall 101. This will provide a sufficiently large number of data points in which to evaluate the effectiveness of the treatment system over the five year permit term and effectively characterize the discharge from Outfall 101. Furthermore, WPSC has agreed to the sampling of the identified main sources of water to the wastewater treatment facility on a quarterly frequency once the PMP Plan receives WDNR approval during the next five years or until the permit is renewed, unless or until it meets one of the three strict criteria for reducing the sampling frequency.

Comment: We were confused by the entry in the table addressing storm drains. Please clarify how re-routing plant storm drains to a coal pile runoff storage basin will reduce Hg levels in the plant’s discharge. (Our understanding is that all coal handling water was collected and sent through the wastewater treatment facility already.)

- A. There is a storm drain that is in the vicinity of the coal storage area and has the potential to contain coal pile runoff. The collected storm water is currently directed to the wastewater treatment facility. WPSC will investigate re-routing this specific storm drain by sending the collected water directly to the coal pile runoff storage basin. Water in this basin can be controlled by either impounding in the

basin until it is directed to the wastewater treatment facility or by using the water for coal pile dust control. This design change is part of our effort to limit and/or eliminate coal pile runoff water from entering the wastewater treatment facility and thus limiting and/or removing this source as a potential source of mercury.

Comment: We believe that Pulliam has discussed the fact that they were unable to find a source that could consistently provide sulfuric acid lower in Hg than 1 mg/l. The PMP suggests that they will consider switching to a formula with a maximum Hg level of 0.1 mg/l. Has Pulliam identified a source of higher-grade product? If not, they should remove this potential action or qualify it to state that they must first identify a supplier that can consistently provide higher-grade sulfuric acid.

- A. WPSC has identified a supplier that is willing to make a commitment to supply sulfuric acid with a Hg level of 0.1 mg/l. The supplier has recently committed to provide a certificate of analysis at least once per year to verify the acid meets the mercury specification. This certification will be the documentation used during this permit term to demonstrate the sulfuric acid provided to the facility will contain a maximum Hg level of 0.1 mg/l.

Comment: The PMP suggests that Pulliam will consider switching from a sodium hydroxide formula with a maximum Hg level of 0.5 mg/l to one with a maximum Hg level of 0.002 mg/l. The annual PMP reports provided say that this has already been done. Why is this action included among the potential ways in which to further reduce Hg in plant effluent?

- A. During the current permit term, WPSC did reduce the specification for the maximum mercury content from 0.5 ppm to 0.002 ppm with a supplier on a limited term basis. During discussions with the supplier, they have agreed to continue to commit to providing sodium hydroxide with a maximum Hg specification of 0.002 ppm. The supplier has also recently committed to provide a certificate of analysis at least once per year to verify the sodium hydroxide meets the mercury specification. This certification will be the documentation used during this permit term to demonstrate the sodium hydroxide provided to the facility will contain a maximum Hg level of 0.002 ppm. This action was reiterated in the draft PMP to emphasize that WPSC had already actively worked to reduce the amount of Hg in the chemicals used at the facility.

Comment: Past annual reports have suggested that additional process chemicals used at the facility may be Hg sources. If the process waters at Pulliam are shown to be net sources of Hg, it may make sense for the operators to take a closer look at each chemical used and to switch to higher-grade (lower Hg) chemistry if it is possible.

- A. WPSC has already completed the review of a number of process chemicals used at the facility. In the future, should a particular wastewater streams be determined to be a source of mercury, the MSDS information for the associated process chemical will be reviewed.

Comment: It is not clear for how long the permittee plans to collect quarterly water samples at the boilers, coal handling, demineralizer, and cooling water waste streams. Please confirm that this will continue for 5 years or until a renewed permit is issued.

- A. The sampling frequency for the identified water sources will be quarterly. WPSC has agreed to the sampling of the identified main sources of water to the wastewater treatment facility on a quarterly frequency during the next five years or until the permit is renewed unless or until it meets one of the three strict criteria for reducing the sampling frequency.

Comment: It is not clear when the decision will be made as to whether a specific waste stream is “determined to be contributing mercury to the facility.” Please clarify the number of samples necessary to make this decision. (Please see additional comment about levels exceeding input water vs. levels exceeding Fox River water.)

- A. WPSC has agreed to the sampling of the identified main sources of water to the wastewater treatment facility on a quarterly frequency during the next five years or until the permit is renewed unless or until it meets one of the three strict criteria for reducing the sampling frequency. If the sampling frequency is being reduced based on the criteria, WPSC will document the justification and make it available for WDNR review.

Comment: Is it possible for Pulliam to account for approximate residence time when sampling wastewater entering the treatment facility and wastewater exiting the facility via sampling point 101? This would provide the most accurate portrayal of the system’s effectiveness at removing mercury.

- A. Residence time varies based upon the number of generating units operating and the number of Lamella clarifiers in service. At normal wastewater treatment storage operating levels, residence time can vary between less than two hours with all Lamella clarifier units operating and up to six hours with only one clarifier in service. WPSC does not believe there is value in using residence time to evaluate the effectiveness of the wastewater treatment facility since the Pulliam facility has limited wastewater storage.